A Review of the Use of Asbestos as a Surrogate for Evaluating the Risk from Other World Trade Center Contaminants

Prepared by:

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Region 2

For the April 12, 2004, Meeting of the
World Trade Center Expert Technical Review Panel

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Outline

- **Reviewers**
- **Charge for Review**
- **Reviewer Comments**

Expert Reviewers

Gary Ginsberg, Connecticut Department of Public Health

Annette Guisseppe-Elie, Dupont Engineering

John Kominsky, Environmental Quality Management, Inc.

Robert Nolan, Center for Applied Studies of the Environment

Clifford Weisel, Rutgers, Environmental and Occupational Health and Safety Institute

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Charge for the Review

The CEQ 10/27 letter mandated that the panel would review:

> "The peer reviewed *"World Trade Center Indoor Air Assessment and Selection of Contaminants of Concern and Setting Health-Based Benchmarks,"* which concluded asbestos was an appropriate surrogate in determining risk for other contaminants."

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Charge for the Review

To assist in their review, EPA is seeking expert consultation on these “charge questions”:

The Confirmation Cleaning Study concluded that "asbestos air sampling was a conservative method for determining if additional cleaning was required". Given this conclusion and its supporting data in the Confirmation Cleaning Study, and all other data sources, is the selection of asbestos as a surrogate for determining the risk from other contaminants supported?

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Charge for the Review

This charge was amended slightly – new addition in redline/italics:

The Confirmation Cleaning Study concluded that "asbestos air sampling was a conservative method for determining if additional cleaning was required". Given this conclusion and its supporting data in the Confirmation Cleaning Study, and all other data sources, is the selection of asbestos as a surrogate for determining the risk from other contaminants, *in the manner used by EPA*, supported?

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Charge for the Review

Charge questions, cont'd:

Do other contaminants that were measured in the Confirmation Cleaning Study provide equally good or better surrogates for determining the risk from other contaminants?

Do the reviewers know of any other contaminants associated with the World Trade Center that were not included in the COPC document or the Confirmation Cleaning Study that may serve as a surrogate for determining the risk from other contaminants?

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Overview

Key Documents and Studies:

- World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks. Final document dated May, 2003
- Confirmation Cleaning Study.
- Region 2 Report on the Indoor Clean-Up Program

The primary objective of the confirmation cleaning study was to evaluate different cleaning methods with regard to their ability to clean apartments to below the benchmark values established in the COPC document. The cleaning methods being evaluated would eventually be used in the Region 2 Clean-Up Program.

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Confirmation Cleaning Study

The Confirmation Cleaning Study Concluded:

- "Asbestos air sampling was a conservative method for determining if additional cleaning was required."

The Region 2 Clean-Up Program cleaned and/or tested with asbestos air sampling. An apartment was "cleared" if measurements of asbestos were non-detect or detect but at or below the benchmark value. An apartment was not cleared and recleaning was offered if:

- There was an "overload" and asbestos could not be measured.
- There was an exceedance of the asbestos health benchmark.
- Measurements were compromised in any other way

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Review Comments – Clifford Weisel

- Asbestos is not an appropriate surrogate:
  - Not present in all WTC dust uniformly; not proportional to other WTC contaminants
  - 2 apartments in Cleaning Confirmation Study were cleared upon first cleaning for asbestos but not for lead
  - Use of asbestos as surrogate was questioned in ATSDR residential study, as it did not always track with SVF
- Recommends two additional measurements: lead in dust, glass fibers in dust, through a wipe sample
- Strongly recommends using one method of sampling, modified aggressive sampling, for new clean-up

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Review Comments – Annette Guiseppi-Elie

- Asbestos is an appropriate surrogate:
  - In the confirmation cleaning study, asbestos was by far the most frequent cause for recleaning – 82% versus 27% for the next highest cause, that from lead
  - Use of 10^{-4} cancer risk is an appropriate risk driver
  - Additional cleaning was sometimes required because the sampling technique led to excess particulate matter rather than an exceedance. This is a compelling rationale to continue this type of monitoring.
- Recommends that EPA monitor some percentage of samples for other COPCs for continued validation of the method.

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Review Comments – Gary Ginsberg

- Asbestos is not necessarily an appropriate surrogate:
  - Combining apartments and common areas in Confirmation Cleaning Study, recleaning was required in 23 instances, 16 for asbestos at least (lead or others in some instances), 6 for lead only, and 1 for crystalline silica; evidence suggests lead exceedences were WTC-related
  - Data from surface wipes from Clean-Up Program show that there were more lead exceedences after clean-up as compared to asbestos
  - The 10^{-4} cancer risk range, while on the upper end of risk commonly used by EPA, is justified based on practical grounds – background levels are near this level and concentrations near detection limit imply this risk level
  - Floor-to-skin transfer for dust-related exposures is underestimated because it is based on dry rather than wet hands; it is not conservative enough and should be revisited
- Recommends taking asbestos in air and lead in dust in tandem; with lead exceedence, check for lead paint.

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Review Comments – Robert Nolan

- Asbestos is an appropriate surrogate:
  - Based on Confirmation Cleaning Study, if the cleaning is effective enough to reduce the asbestos concentrations below the health-based benchmarks, it is reasonable to assume that the other five COPC were below their benchmarks.
  - The use of 10^{-4} lifetime risk, and assumption of inhalation, was reasonable for use in COPC document. Further, of the 6 COPCs, the best case for non-occupational exposure can be made for asbestos and therefore, it is the best choice for post-cleaning monitoring.
- All of the COPC are commonly found in the urban environment, and therefore, analytical results will not provide a "fingerprint" for WTC related dust indoors.

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Review Comments – John Kominsky

- Asbestos is an appropriate surrogate:
  - Analysis of confidential data from one building showed that levels of contaminants (asbestos, lead, others) are generally proportional to each other and that this strongly supports the selection of asbestos as surrogate for determining risk from other WTC-related contaminants
  - Resuspension and buoyancy of asbestos fibers further support its selection of surrogate
  - TEM is the appropriate technique for analysis
  - Lead could possibly be used as a surrogate as well, however, lead cannot be used to address “recontamination” in present study, but rather “existing contamination” or “presence of WTC dust
- Recommends that new sampling disturb and re-entrain materials from hidden or not readily accessible areas.

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Asbestos As Surrogate

Schedule:

April 8 - teleconference among panel members to discuss issues

Late April – Report to EPA on teleconference, with all reviewer comments attached